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LETTERS AND CORRESPONDENCE

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Pseudo-"Acid Retinoic Syndrome" Mimicked by Severe Influenza A Infection

To the Editor: To date the induction treatment of acute promyelocytic leukemia (FAB classification M3 type or AML3) involves both myeloablative chemotherapy and the use of all-*trans*-retinoic acid (ATRA) [1]. ATRA is usually safe and well tolerated. Nonetheless, many negative effects of ATRA have been described. The most serious adverse event is the "retinoic acid syndrome," characterized by fever, respiratory distress, pulmonary infiltrates, pleural effusion, and weight gain [2]. This syndrome could be prevented by starting chemotherapy when a rise in leukocyte count occurs. Early diagnosis leads to ATRA discontinuation and corticosteroid use.

A 47-year-old man was admitted at our institution for typical AML3. Caryotypic and molecular investigations found typical t(15;17) translocation and PML/RARα fusion transcript. Treatment was initiated with both ATRA and chemotherapy (doxorubicin + aracytin). On day 3 the patient developed fever and acute respiratory distress leading to admission to the critical care unit. Radiograph of the chest showed pulmonary infiltrates and a right pleural effusion. ATRA was stopped since the diagnosis of "retinoic acid syndrome" was strongly suspected. Leukocyte count was normal, but this feature is observed in up to one-third of ATRA syndromes. A bronchoalveolar washing was done; immunofluorescence examination showed the presence of influenza A virus. Acute influenza A infection was further confirmed by the rise of specific antibody levels observed in sera obtained during acute illness and 3 weeks later. The respiratory status of the patient progressively improved, and complete remission was obtained. The patient is still in complete remission 17 months after diagnosis.

This case report demonstrates that an infectious disease can perfectly mimic the "retinoic acid syndrome." Thus careful etiologic search must be performed, in particular to avoid the inappropriate use of corticosteroids during a viral infection.

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Heat Exhaustion With Thrombocytopenia and Leukopenia in a Car Wash Attendant

To the Editor: A 32-year-old previously healthy Latino man suddenly developed excessive thirst, sweating, leg cramps, fatigue, nausea, asthenia, frontal headache, dizziness, and fainting sensation. He washed and wiped cars; ambient dry bulb temperature was 37.8°C.

Initial parameters were: height 180 cm, weight 65.9 kg, pulse 94/mm, blood pressure 100/60 mm, temperature 38.1°C. His face was flushed, lips were dry, and skin was moist. Liver, spleen, and kidneys were not palpable. There was no lymphadenopathy or petechiae.

The patient recovered with oral fluids and rest. On day 0, mild thrombocytopenia and leukopenia were noted that improved on days 4 and 20 (Table I). Serum electrolytes (mEq/L) were: sodium 137 (normal, 133–145), potassium 4 (normal, 3.3–5.1), chloride 100 (normal, 96–108). Antinuclear and human immunodeficiency virus antibodies were absent. Urinalysis, electrocardiogram, and serum transaminases, proteins, urea, glucose, and bilirubin were normal. Coagulation or bone marrow studies were not performed.

Several factors led to heat exhaustion in this man who was not predisposed to it due to age, disease, debility, or drugs [1,2]. The patient generated twice as much metabolic heat while carwashing (moderately heavy work, manual labor, bending, wiping: 5–7 kcal/hr) as in his usual job (light work, standing, walking: 2–4 kcal/hr) [3]. The patient wiped cars under direct sun (without a cap or sunglasses), which increased heat absorption by radiation. High humidity in the car wash tunnel reduced evaporative heat loss. The patient was unacclimatized to heat stress since he usually worked indoors; acclimatization (which lowers sweating threshold to maintain heat homeostasis) requires 7–14 days of exposure [1,2]. The patient did not receive adequate rest breaks to interrupt heat stress. In addition, due to his lack of thirst and the hectic work pace, he did not drink an adequate amount of fluids.

TABLE I. Hematologic Parameters on Days 0 (Onset of Illness), 4, and 20 in a Car Wash Attendant Who Developed Heat Exhaustion*

Parameter	Day 0	Day 4	Day 20	Normal range
Platelets (/μL)	111,000	126,000	149,000	145,000–450,000
Leukocytes (k/μL)	3.4	4.8	5.9	4.8–10.8
Neutrophils (%)	53.7	56.1	54.2	45–76
Hemoglobin (g/dL)	14.9	16.2	14.7	14–18
Hematocrit (%)	43.7	45.5	42.9	42–52
Erythrocyte (m/μL)	5.27	5.52	5.15	4.5–6.1

*Parameters were determined on venous blood in a Coulter counter. Count of lymphocytes, eosinophils, basophils, and monocytes remained normal on all occasions.

To prevent heat illnesses, a high index of suspicion should be maintained during a heat wave or while using unacclimatized workers in heavy labor. Employers should measure wet bulb globe temperature index (which correlates with deep body temperature) and plan work schedules within permissible threshold limit values [3]. In this respect, the workers' compensation insurer can provide critical technical know-how to its insureds; this will reduce heat-related injuries and claim expense.

We hypothesize that the observed thrombocytopenia and leukopenia were caused by thermolysis since they were noted on the first day of heat exhaustion and progressively improved. Circulating platelets and neutrophils have a relatively short life span of 10 days and 10 hours, respectively [4]; this may explain their prompt replenishment from bone marrow. Although thrombocytopenia (with disseminated intravascular coagulation) is often observed in heat stroke [1,5], this is the first report of this potentially serious complication in a mild heat illness.

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Factor XI Deficiency in a Bedouin Family

To the Editor: Factor XI deficiency is frequent (1 in 190 individuals) in Jewish people of Ashkenazi descent. It is inherited as an autosomal incompletely recessive trait and was first described by Rosenthal et al. [1]. Factor XI deficiency has also been reported in non-Jewish patients, at an extremely rare frequency of about 1 per million population [2]. Three distinct mutations (types I, II, and III) have been identified in the factor XI gene in Ashkenazi Jews and the genotypes fully defined [3]. The frequency of types II and III defective alleles was 49% and 47%, respectively. No type I mutation was observed. The distribution of mutant alleles is significantly different between Jewish and non-Jewish populations, with undefined mutations accounting for 84% in non-Jewish patients [4].

A 22-year-old Bedouin woman whose parents are first cousins was admitted because of vaginal bleeding during the fourth month of her first pregnancy. There were no prior bleeding episodes. No abnormal physical findings were found. Coagulation studies were performed using the MLA Electra 900 C instrument (Medical Laboratory Automation, Pleasantville, NY). Prothrombin time was 11.3 seconds (normal, 12–14 seconds). Partial thromboplastin time was 82.9 seconds (normal, 32–34 seconds). No inhibitor was found. Factors VII and XII activities were normal. Factor XI activity was 0% (normal, 50–130%). The bleeding stopped after fresh frozen plasma (FFP) transfusions. FFP transfusions preceded the labor, and the delivery was uneventful.

TABLE I. Family Data

Family member examined	Age (yr)	Factor XI activity (%)
Mother	48	42.1
Propositus	22	0
Sister	18	43.3
Sister	16	22.4
Sister	13	59.1
Brother	11	30.5
Brother	9	1

The family was examined and the data are presented in Table I. In addition, the mutation type was established by Prof. Uri Zeligson from the Sheba Medical Center (Tel Hashomer, Israel) and found to be type II mutation.

Thus, factor XI deficiency, type II, should be sought in Bedouin as well as Jewish families.

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Hemorrhagic Cystitis Associated With BKV in Patients With Refractory Acute Lymphoblastic Leukemia

To the Editor: We wish to describe three cases of hemorrhagic cystitis (HC) associated with polyomavirus BK (BKV) viruria in patients with severe immunodepression because of refractory or relapsed acute lymphoblastic leukemia (ALL).

From June 1987 to July 1993, 55 patients with refractory or relapsed ALL received as salvage treatment the Hi-COAP regimen [1], consisting of vincristine, 2 mg given as an iv bolus injection on day 1, cyclophosphamide (CY) 350 mg/m^2/day by continuous iv infusion for 7 consecutive days, ARA-C 100 mg/m^2 iv bolus every 12 hours from day 1 to day 7, and prednisone 100 mg daily by mouth for 7 days and then tapered over 3 days. All patients were meant to receive a second course with the same schedule at recovery of blood counts. MESNA prophylaxis was not routinely performed since patients were considered to be at low risk of HC with the